

# DOS, IT & PORTS

## DOS, IT & WINDOWS 7

### Solutions to operate "InstantTune" & "InstantTrack" or DOS Programs on a last generation computer

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**Author's note :** This \*PDF file is interactive. Click on the coloured words or links to read notes or to open web pages that interest you. They are located in the appendix. Then, in the line added to return to the text click on the reference number.

#### Introduction

[InstantTune\(1\)](#) and [InstantTrack\(2\)](#) are programs for PC running DOS or an environment for DOS programs (Windows for instance). An interesting advantage of DOS programs is that they are not dependant of the version of Windows installed on the computer.

Among other things *InstantTune* and *InstantTrack* use COM ports (serial port) and LPT port (parallel port) to transmit data to the transceiver, to control antenna rotators in real time, or to print satellite pass predictions.

Two important issues concerning the operation and the future of DOS programs have emerged recently. On one hand, Windows 7, released recently, no longer supports DOS programs. On the other hand, modern computers are not equipped with serial and parallel ports. These have been replaced by USB ports.

The purpose of this paper is to propose a solution to continue to use [InstantTune\(3\)](#) and [InstantTrack\(4\)](#) on a last generation computer. Excluding two special requirements for *InstantTrack*, these solutions can adapt to the use of other DOS programs.

## Solutions

There are two requirements for information to be transmitted properly from *InstantTune* :

- 1) *InstantTrack* should run full screen (see [Note 1 \\*](#)).
- 2) the platform supporting DOS programs must be a version of Windows released before Windows XP (see [Note 2 \\*\\*](#)) (or Windows XP, or Windows Vista with the limitation described in the Note 2) or simply DOS with an NTFS driver.

Under Windows 7 or Vista (Vista does not support running DOS programs in all graphic modes) it is possible to run [InstantTrack\(5\)](#) under an add-on DOS environment (called also DOS emulator) like **DOSBox (#)**. I tested this solution under Windows XP, Vista and Windows 7, it works perfectly.

When [InstantTune\(6\)](#) is launched it is working normally. Nevertheless DOSBox supports only serial ports (COM ports). Parallel port (LPT) is not supported. So this solution was not adopted because for automatic Doppler shift tuning with a push-button RX a parallel port is required. Consequently transmission of data through a COM port was not tested. Of course if the LPT port is not used, DOSBox is the best solution to run a DOS program under Windows 7.

When a fully functional DOS program is needed the most reliable and easiest way to run it is to divide the hard drive into two partitions. Then install MS-DOS or an older suitable version of Windows on one of the partition (any version of Windows from 95 to XP gives enough support for DOS programs) and Windows 7 on the second one. You can also install both platforms on two different disks. At this point, the reader is supposed to know how to make these changes.

When the disk partition is made and DOS programs are running, we have to deal with communication.

Two situations can arise :

- 1) you can install a PCI card with real serial and parallel ports : it will be imperative to choose a card which is 100% DOS compatible ( some PCI port cards only work under Windows but not DOS). The problem of communication is then solved.
- 2) you cannot install a PCI card with serial and parallel ports, this is the case of a laptop : if the configuration of the computer allows it, you can install a PCMCIA card with serial and/or parallel ports but here the card must be also 100% DOS compatible (most of them are not). It will be a challenge to find this DOS compatible card especially for a parallel port.

**If the solutions proposed above can not be implemented, nothing's lost ! There is the possibility of using a USB port.**

### The DOS program uses a serial port for data transmission

There are **USB to SERIAL converters**. The data is captured, sent through a USB port and is converted to serial format. These converters are generally provided with a CD containing the installer and the drivers. The driver must have a "COM emulation" mode. **The converter must be DOS compatible.**



**Fig 1 USB / SERIAL Converter**

**The DOS program uses a parallel port for data transmission**

In this case a **USB to Parallel converter** can be used. It must be 100% DOS compatible.

(author's note : I have found only one converter that is DOS compatible !)

The reference can be found in the appendix below. This converter is named "**USB2LPT**"(\*\*\*)  
(click on the indigo link to open the web page).

It works with all versions of Windows, from Windows 98 to Windows 7. Two types are available : USB2LPT 1.6 and USB2LPT 1.7. For information, USB2LPT 1.6 has some limitations. It does not allow the use of a printer (remark: *InstantTrack* has an option to print tables for predicting satellite pass ) and it may be incompatible with certain USB host controllers. I was able to install USB2LPT 1.6 successfully on a computer running Windows XP. The installation tests on two other computers including a laptop were unsuccessful.



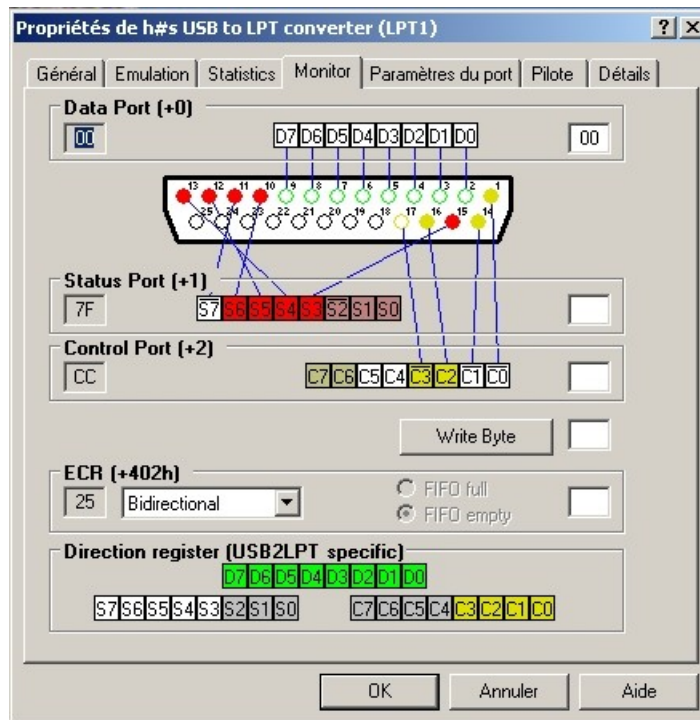
**Fig 2 USB / PARALLEL Converter USB2LPT 1.7**

It is therefore advisable to install **USB2LPT 1.7**. This model allows printing and has no installation restrictions. For installation please refer to the "installation manual" (pamphlet.doc). This manual is a WinWord2000 file. This file converted to \*PDF format can be found by clicking "[here](#)".

### Tests

Installing USB2LPT 1.7 was easy on a computer running Windows XP and on a "dual-core" computer running Windows Vista. After starting *InstantTune* and *InstantTrack*, pulses sent to the LPT port are retrieved from the USB port on which the driver was installed.

When opening "USB to LPT Properties" in "Device Manager", the window below is shown. The "Monitor" tab shown below allows each line of data to be tested. The interface described in "Doppler shift tuning with a push-button RX and *InstantTune*" and equipped with LEDs may then be useful for testing the operation of the data lines.

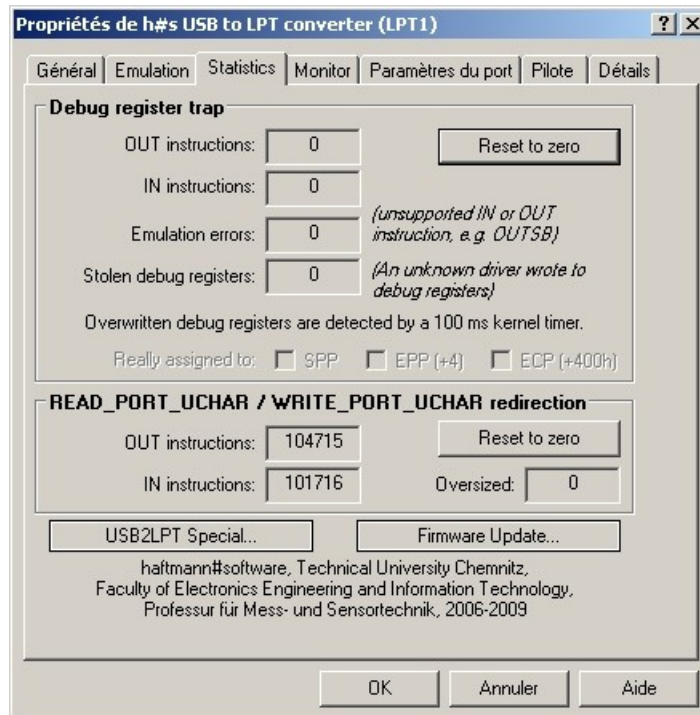


**Fig 3**  
**The tabs installed with USB2LPT drivers**

### Conclusion :

The simple solutions proposed above can be implemented easily. Running Windows 7 (or Vista) with DOSBox or a dual-boot computer working under Windows 7 and a previous O/S and using USB to serial or parallel converters (with DOS compatibility and a port emulator) allow *InstantTrack* and *InstantTune* (or any DOS program) to be used on a new generation computer.

In the tab named "Statistics" shown below you can see the amount of data exchanged via the USB port.



**Fig 4 USB2LPT – "Statistics" tab**

## Notes

**Note 1 :** (from "InstantTune User's Guide, Step 3" AA2TX)

### Running under Windows

InstantTrack and InstantTune can be run as a DOS session under Windows. It must be run in a FULLSCREEN or it will not work correctly. If you minimize the DOS session, InstantTune operation will be suspended because Windows will stop sending DOS timer ticks and interrupts to the TSRs. When you switch back to a full screen, satellite tracking and tuning will resume, however the real-time clock in the OrbitDRV TSR will no longer have the correct time!

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**Note 2 :** (AN)

In the *InstantTune* program, the driver for "micbutton\*" radios is not running correctly under Windows XP (and probably also Vista) because of problems with the Microsoft DOS emulator for Windows XP. The DOS emulator does not handle perfectly the hardware timer emulation. When running the program the error will be noticeable after several hours. As there is no fix for this, the problem is solved by resetting the tracking after each satellite pass. However the driver for "micbutton" radios works perfectly with previous versions of Windows (Win 98, Win 2000). (\* micbutton is the name used in the "ITUNE.CFG")

To return to the text click (\*\*).

## **Appendix and bibliography**

### **InstantTrack**

Web links :

*InstantTrack* : .....<http://www.amsat.org/amsat/instanttrack/>  
*InstantTrack Screenshots* : <http://www.amsat.org/amsat/instanttrack/screens.html>  
*InstantTrack FAQ* : .....<http://www.amsat.org/amsat/intro/itfaq.html>  
*InstantTrack Accessories* : <http://www.amsat.org/amsat-new/tools/softwareArchive.php#pc-it>

To return to the text click (2),(4),(5)

### **InstantTune**

*“InstantTune User's Guide”* AA2TX

The *InstantTune User's Guide* (itune.doc) is in Word 2 format. For easy reading, I have posted a copy of the file converted to \*PDF format. To open this file and discover the multiple possibilities of *InstantTune*, click **"here"** .

Web link :

*InstantTrack Accessories* : ... <http://www.amsat.org/amsat-new/tools/softwareArchive.php#pc-it>

To return to the text click (1),(3),(6)

### **USB2LPT Converter**

Web link :

<http://www-user.tu-chemnitz.de/~heha/bastelecke/Rund%20um%20den%20PC/USB2LPT/index.html.en>

To return to the text click (\*\*\*)

**DOSBox** (DOSBox is freeware)

Web link : ..... <http://www.dosbox.com/>

To return to the text click (#)



**Fig 5**

**Pictures :** *by the author ON6WG / F5VIF*

**ON6WG / F5VIF Web site :** ..... <http://on6wg.pagesperso-orange.fr/>

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